



## BAUR Product overview

Networks are sensitive.  
We help you protect them.



# Insulating oil testing

Insulating liquids are an important component of many electrical devices. Highly refined mineral oils, silicone oils, vegetable oils (natural ester) and synthetic ester ensure smooth operation of transformers, medical devices, safety devices or even radar equipment. Insulating materials lose their insulating and cooling properties due to impurities and ageing. This can result in damage and failure of transformers and systems.

Testing of insulating liquids is regulated by national and international standards. You can achieve huge savings potential through optimised use of insulating oils and regular testing to increase the service life of oil-insulated transformers and systems.

## Breakdown voltage test



### DPA 75 C and DTA 100 C Oil breakdown voltage testers

The BAUR oil breakdown voltage testers are available as portable models with a max. voltage of 75 kV and for laboratory use with 100 kV. The combination of extremely short switch-off times during breakdowns and easy oil sample handling facilitate high quality statements and conclusions on the insulating oil quality.

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- Fully automatic testing of the electric strength in compliance with international and national standards
- Suitable for silicone oils and ester liquids
- Reliable, reproducible measurement results using the latest measurement technology



### Report Manager

BAUR Report Manager, the external USB interface for oil testers, is used to automatically export measurement logs from BAUR oil testers to a USB drive.

## Dissipation factor measurement



### DTL C Oil tan delta and resistivity tester

The tan delta measurement is the most conclusive oil testing method. Tan delta measurements are performed around the globe for producing and refining

oil and in laboratories for determining the oil quality in new and aged insulating liquids. The BAUR DTL C oil tan delta and resistivity tester measures tan delta values of up to  $1 \times 10^{-6}$  according to a special measurement principle.

- Fully automatic measurement in compliance with international standards
- Especially efficient for continuous use in the laboratory
- Multiple calibrators guarantee precision and reproducibility for decades

## BAUR software



### ITS Lite Software for measurement data management

The BAUR ITS Lite software is used to read and archive measurement logs of the DPA 75 C, DTA 100 C and DTL C oil testers.

# Cable fault location

Faults in cable systems should be detected fast and precisely using efficient pre-location and pin-pointing methods. To achieve this, BAUR offers robust, reliable, flexible devices that are equipped with the appropriate methods depending on the application.

## Burn down transformers



### ATG 2 and ATG 6000 Burn down transformer

The ATG allows conversion from a high-resistive fault to a low-resistive fault. In this way, a time domain reflectometer can be used to pre-locate a low-resistive fault. Owing to the varying voltage steps up to 10 kV<sub>DC</sub> (15 kV<sub>DC</sub> in the ATG 6000), the power can also be adjusted under full load. An especially high burning capacity is achieved through the adjustable output current of 32 A and 90 A.

## Cable and phase identification



### KSG 200 Cable identification system

The KSG 200 is used to identify single- and multi-core cables in a cable bundle. The ATP analysis (Amplitude, Time, Phase) guarantees maximum safety during cable identification and even allows identification of live cables up to 400 V. The KSG 200 is also available with a rechargeable battery as an option.

## Cable sheath testing and fault location



### shirla Sheath test and fault location device

shirla is used for cable sheath testing up to 10 kV in compliance with IEC 60229, for fault pre-location according to the Murray and Glaser measuring bridge method and for pin-pointing with the help of the step voltage method. Moreover, the measuring bridge is the ideal complement to conventional cable fault location systems. Various bridge applications even allow you to use shirla for more complex fault location tasks on power cables and control lines.

## Pre-location and pin-pointing of cable routes



### protrac® Pin-pointing system

The BAUR protrac® pin-pointing system is designed for the very accurate pin-pointing of cable and cable sheath faults and for tracing. Combining acoustic and electromagnetic fault pin-pointing with sheath fault location in one system, it is ideal for universal application. Thanks to the use of the latest technologies, the location of the fault position with protrac® is particularly fast and precise. The innovative concept offers a very high level of sensitivity and accuracy and the two-stage ANS signal processing concept provides effective suppression of ambient noise.



### Locator Set/UL 30 Cable tracing and fault location system

The Locator Set with the high performance audio frequency generator (50 VA) is used for tracing and determining the laying depth of cables. By using various accessories, fault location can be carried out using the twist method or minimum distortion method. The set also permits cable tracing and depth determination for cables.

The system comprises an audio frequency transmitter, a receiver (UL 30), headphones, search coil and various connection accessories.



### TG 600 and TG 20/50 Audio frequency transmitter

The TG 600 audio frequency transmitter is designed specifically for the precise location of cable faults and joints using the twist method, as well as for tracing and determining laying depths of cables. An audio frequency based signal with up to 600 VA and two selectable frequencies (2 kHz; 10 kHz) is fed into the cable and detected with a search coil.



### **CL 20** **Cable locator**

Long and short cables are easy to locate with the CL 20 cable locator. The device supports different location methods and in addition allows you to determine the laying depth. The CL 20 is the ideal device for the precise locating of cable routes before undertaking any excavation activity.

## **Surge voltage generators**



### **SSG 500** **Surge voltage generator**

The SSG 500 surge voltage generator with voltage steps up to 16 kV is ideal for low- and medium-voltage networks. It can be used in combination with an IRG for pre-locating faults with the ICM method. Together with a pin-pointing unit, the SSG 500 forms a portable solution for cable fault location.



### **SSG 1100–3000** **Surge voltage generator**

Surge voltage generators enable precise location of high-resistive, low-resistive and intermittent faults in high-, medium- and low-voltage cables. The robust, powerful surge voltage generators SSG 1100 (1,100 J), SSG 1500 (1,536 J), SSG 2100 (2,048 J) and SSG 3000 (3,000 J) are used in Syscompact and transicable fault location systems, and also in standalone devices.

## **Time domain reflectometers**



### **IRG 2000** **Time Domain Reflectometer (TDR)**

The IRG 2000 time domain reflectometer is a portable, user-friendly device for cable fault pre-location using time domain reflectometry and other methods (e.g. SIM/MIM) on low-, medium- and high-voltage cables. With this compact device, you can measure cables with a length of up to 65 m. The fault distance is displayed.



### **IRG 4000** **Time Domain Reflectometer (TDR)**

The IRG 4000 is the best choice for complex requirements in cable fault location. The user-friendly, computer-supported device offers unique functions for intelligent, automated cable fault location, e.g. with the SIM/MIM method (in combination with a surge voltage generator). With a measuring range of over 1,000 km, you can locate faults automatically even in very long cables. The IRG 4000 is primarily integrated as a single-phase or three-phase system in cable fault location solutions (Syscompact or cable test vans). It can also be used for controlling VLF test and diagnostics systems.



### **TDR 500 / TDR 510** **Portable time domain reflectometer**

The TDR 500 is used for length determination and fault location in all cables. It enables tests for breaks, short-circuits, contacts, inadmissible deviation, water ingress and other cable faults. The device determines the cable length and displays the distance to the fault. The BAUR TDR 510 comes with a device memory for 50 measurements and the option to compare the trace of an active TDR measurement with a saved trace.

- Configurable for various measuring ranges and cable types
- Standard-compliant, safe measurements on live cables through the measurement category CAT IV / 600 V (with optional separation filter)

# Cable test vans and fault location systems

Precise and fast cable fault location, testing and diagnostics of new and aged cable routes – the BAUR cable test vans are suitable for any operation. Fast and reliable. Exactly adapted to individual requirements and cable networks.

## Cable test vans



### titron® Cable test van

The titron® is a fully automatic cable test van for cable fault location and cable testing. The new generation high-performance cable test van is based on state-of-the-art technology and provides efficient, safe and reliable cable fault location and cable testing.

- New intuitive operational concept, most modern fault location system in the world
- Central, automatic system control
- Top reliability and quality standard
- Flexible in terms of technology and equipment
- BAUR Fault Location App for remote control of the cable fault pin-pointing process



### transcable 4000 Cable test van

Cable fault location, testing and diagnostics are possible based on the area of use and the customer's wishes. Even voltage levels and power classes can be selected based on the mains. Available as single-phase or three-phase model.



### Syscompact 2000 portable Cable fault location system

The Syscompact 2000 portable cable fault location system is used for precise location of high-resistive and intermittent faults in low- and medium-voltage cables.

- Fast, reliable, precise cable fault location
- High performance high voltage unit up to 32 kV/2,100 J
- Various cable fault location methods integrated



### Syscompact 2000 Cable fault location system

The Syscompact 2000 is a multifunctional cable fault location system designed for modular 19" rack technology. The Syscompact combines a TDR IRG 2000, a coupling system for SIM/MIM, ICM fault pre-location methods and a powerful SSG surge voltage generator. It is available as a portable solution or for installation in a van with cable drums of 25 m and 50 m. Portable solutions are primarily equipped with the 1,100 J 8/16/32 kV surge generator. The vehicle model is available with up to 3,000 J, 8/16/32 kV and an optional voltage range of 4 kV.

## Cable fault location systems



### Syscompact 2000 M pro Portable cable fault location system

Lightweight, modern, multi-functional cable fault location system with a max. voltage of 16 kV. The integrated surge and test generator is used for cable and sheath testing as well as for the precise location of high-resistive and intermittent faults.

- Fault location on low- and medium-voltage cables up to 65 km
- For location of high-resistive and low-resistive as well as intermittent faults
- Latest methods for fault pre-location (SIM/MIM, impulse current method)



### Syscompact 4000 Cable fault location system

The Syscompact 4000 is a multifunctional cable fault location system. It combines a computer-aided TDR IRG 4000, a coupling system for SIM/MIM and ICM fault pre-location methods, as well as a high-performance SSG surge voltage generator up to 3,000 J, 32 kV, three voltage steps 8/16/32 kV and expandable with 4 kV.

# Cable testing and diagnostics

Cable networks are expensive. Condition-based maintenance is gaining importance for power cable network companies. Precise information about the condition of cable routes enhances the competitive edge.

## AC and DC voltage testing



### **PGK HB** **High-voltage test set**

There are hardly any other longer-lasting, more robust and cost-effective test sets than the PGK HB series. The test sets generate continuously adjustable test voltages for DC voltage testing with selectable polarity or for AC voltage tests.

- DC voltage testing of medium- and high-voltage cables up to 260 kV
- AC voltage testing (60 Hz) of switchgear and bus bars up to 190 kV<sub>rms</sub>
- User-friendly, maintenance-free two-part setup



### **PGK 25** **High-voltage tester**

The portable cable tester is used for DC voltage testing in low- and medium-voltage cables. It is characterised by its low weight, easy operation and solid construction for onsite use.

- Two continuously adjustable output voltage ranges: 0-5 kV and 0-25 kV DC
- Power supply through rechargeable battery or power network
- Integrated rechargeable battery with 12 V and 6.5 Ah allows an operating time of approx. 30-60 min.
- Integrated discharge unit, max. discharge energy: 5,000 Ws (16 µF/25 kV)



### **PGK 50 and PGK 80** **High-voltage tester**

The PGK 50 and PGK 80 cable testers offer test voltages of up to 50 kV and 80 kV for DC voltage testing of medium-voltage cables.

- Integrated discharge unit, max. discharge energy: 8,000 Ws
- Voltage measurement at HV output

## Portable VLF testing and tan δ diagnostics



### **frida TD** **High-voltage testing and diagnostics device**

Many cable routes are in the voltage range of up to 20 kV. These cables can be tested with frida TD easily and fast. Even the ageing condition of the cable can be determined automatically and very precisely thanks to the integrated tan delta measuring unit.

- VLF cable testing, tan δ diagnostics and cable sheath testing in one device
- Max. test voltage: 24 kV<sub>rms</sub> / 34 kV<sub>peak</sub>
- Highly precise tan δ measurement with an accuracy of (1 \* 10<sup>-4</sup>) based on the VLF truesinus® technology
- Fully automatic diagnostic measurement and interpretation of measurement results.



### **viola TD** **High-voltage testing and diagnostics device**

viola TD offers high performance in a compact design. With an output voltage of 44 kV<sub>rms</sub> (62 kV<sub>peak</sub>), the device is suitable for testing and diagnostics on cables with a nominal voltage of up to 35 kV.

- VLF cable testing, tan δ diagnostics and cable sheath testing in one device
- Max. test voltage: 44 kV<sub>rms</sub> / 62 kV<sub>peak</sub>
- Highly precise tan δ measurement with an accuracy of (1 \* 10<sup>-4</sup>) based on the VLF truesinus® technology
- Fully automatic diagnostic measurement and interpretation of measurement results.

## VLF test and diagnostics systems



### PHG 70 and PHG 80 portable VLF cable testing and diagnostics system

Fully automatic high-voltage generator

- VLF truesinus®, VLF square wave and DC voltage in one device
- PHG 70 max. test voltage:  $38 \text{ kV}_{\text{rms}}$  /  $54 \text{ kV}_{\text{peak}}$   
PHG 80 max. test voltage:  $57 \text{ kV}_{\text{rms}}$  /  $80 \text{ kV}_{\text{peak}}$



### PHG 70/80 TD and PHG 70/80 TD PD VLF cable test and diagnostics system

The multi-functional test and diagnostics systems enable reliable determination of the cable condition. The systems allow VLF voltage tests,  $\tan \delta$  dissipation factor measurements and location and measurement of partial discharges.

- For medium-voltage cables of up to 50 kV
- PHG 70 TD/PD max. test voltage:  $38 \text{ kV}_{\text{rms}}$  /  $54 \text{ kV}_{\text{peak}}$   
PHG 80 TD/PD max. test voltage:  $57 \text{ kV}_{\text{rms}}$  /  $80 \text{ kV}_{\text{peak}}$
- Powerful VLF test and diagnostics system for long cable routes
- Highly precise  $\tan \delta$  measurement and automatic program sequences with individual programming
- Partial discharge diagnostics acc. to IEC 60270

## Online partial discharge diagnostics



### liona Online PD spot tester

liona measures and locates partial discharges (PD) in cables and switchgear during mains operation.

- With DeCIfer® technology: Expert system for PD identification based on 500 million analysed measurement results.
- Precise online PD mapping with iPD transponder (option)



### PD-SGS Handheld online PD detector

The PD-SGS tests live switchgear (whether air- or SF6 gas-insulated) for partial discharges. Potential weak points are immediately signalled acoustically and numerically. The device can be extended with a parabolic sensor for safe and efficient measurement of high-voltage components.

## Partial discharge pin-pointing



### tracy Partial discharge inductor

tracy induces a HF pulse at the pre-located fault. With the help of a PD measurement system, e.g. the PHG TD PD, the signal can be located and compared with the result of the PD pre-location.

- Very easy to handle, precise confirmation of the PD source
- Degree of protection IP 54

## Portable partial discharge diagnostics



### PD-TaD 80 and PD-TaD 62 Portable PD diagnostics systems

PD-TaD 80 and PD-TaD 62 are used together with the BAUR VLF generators fri-da TD, viola TD and PHG for PD testing and location

- Comprehensive cable analysis with PD and dissipation factor measurement\* in compliance with IEEE 400.2
- Time-optimised and safe determination of the cable condition
- Light and compact PD measuring devices up to  $62/80 \text{ kV}_{\text{peak}}$ , developed for portable use on site or integrated in cable test vans



## BAUR Software



### **BAUR Software 4** **Condition-based maintenance**

The BAUR Software is used in combination with the BAUR test and diagnostics systems for the testing, diagnostic measurement and condition evaluation of medium voltage cables and electrical equipment. Thanks to its innovative operating concept, the BAUR Software provides optimal support to both asset managers and measurement engineers in their work flows, and allows operators to efficiently plan and carry out measurements, as well as precisely monitor the condition of cable networks.



### **statex®** **Evaluation of remaining cable life time**

The statex® analysis software is used for the detailed determination of the ageing condition, the speed of ageing and the statistical remaining life time of a cable route based on the dissipation factor diagnostics with VLF truesinus® voltage (Very LowFrequency).



## Professional consultation and service worldwide

We offer reliable service by competent experts and a comprehensive range of services. We are happy to offer assistance in the following areas:

- Technical support for questions on devices, software or applications
- Maintenance and repair of devices
- Calibration and measurement
- Training

For further information or competent consultation, contact us at: [www.baur.at/service](http://www.baur.at/service)